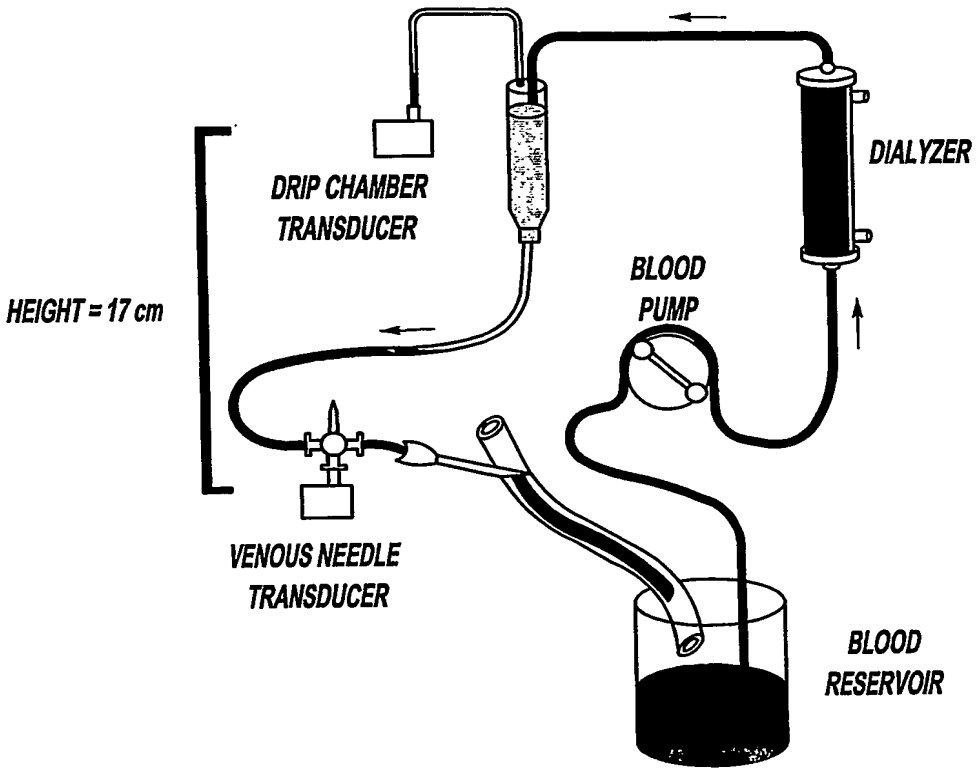

DRIP CHAMBER
TRANSDUCER
DIALYZER
BLOOD
PUMP
HEIGHT = 17 cm
VENOUS NEEDLE
TRANSDUCER
BLOOD
RESERVOIR

Figure - 1

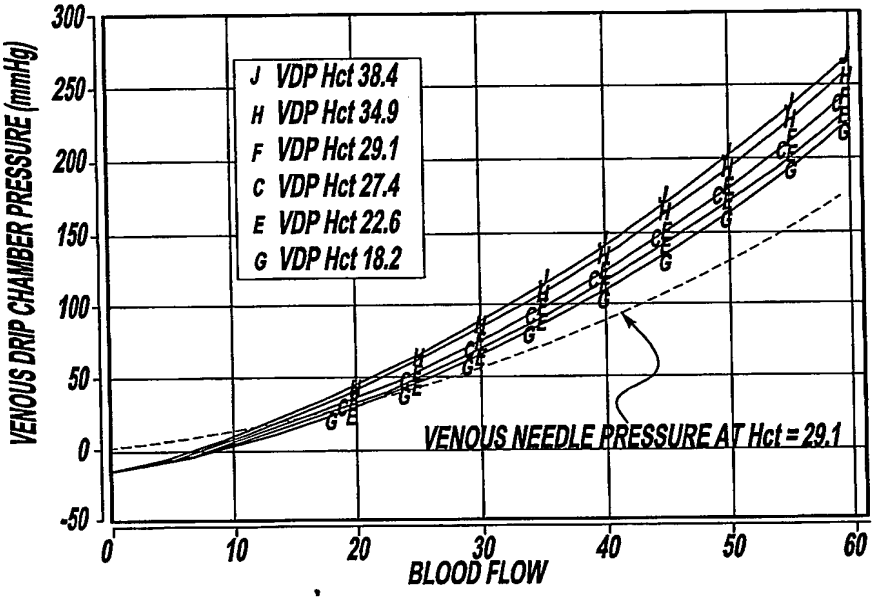

VENOUS DRIP CHAMBER PRESSURE (mmHg)
300
250
200
150
100
50
0
-50
0
10
20
30
40
50
60
BLOOD FLOW
J VDP Hct 38.4
H VDP Hct 34.9
F VDP Hct 29.1
C VDP Hct 27.4
E VDP Hct 22.6
G VDP Hct 18.2
VENOUS NEEDLE PRESSURE AT Hct = 29.1

Figure - 2

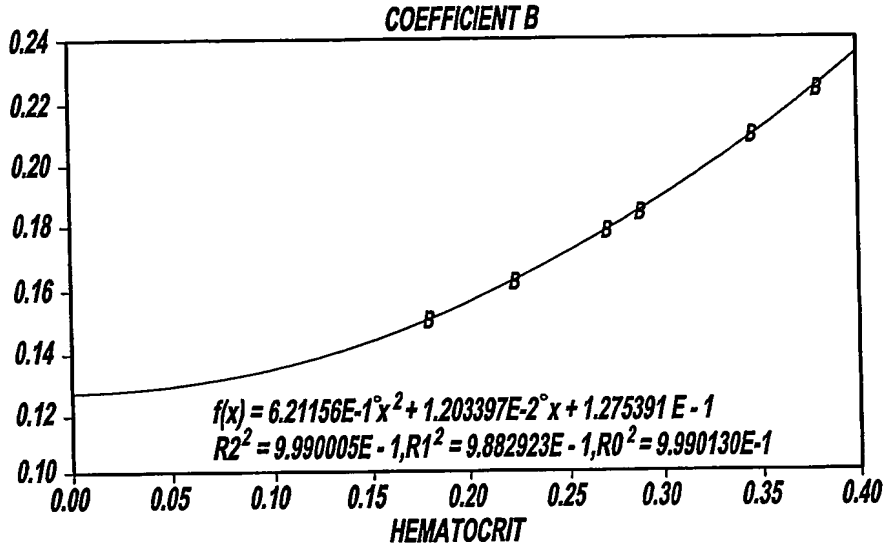

COEFFICIENT B
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
HEMATOCRIT
f(x) = 6.21156E-1°x2 + 1.203397E-2°x + 1.275391 E - 1
R2 2 = 9.990005E - 1,R1 2 = 9.882923E - 1,R0 2 = 9.990130E-1

Figure - 3

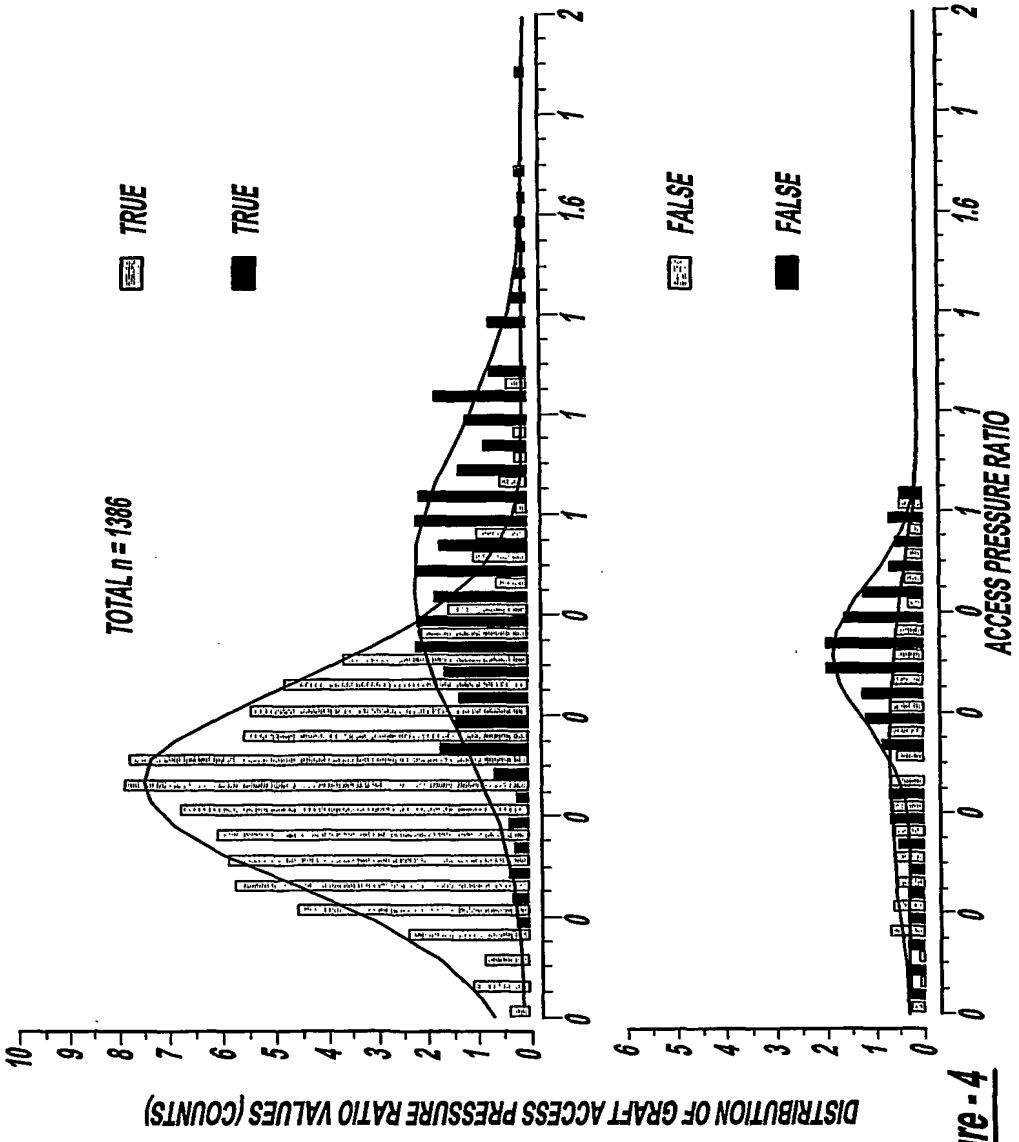

TOTAL n = 1386
TRUE
TRUE
FALSE
FALSE
ACCESS PRESSURE RATIO
DISTRIBUTION OF GRAFT ACCESS PRESSURE RATIO VALUES (COUNTS)

Figure - 4

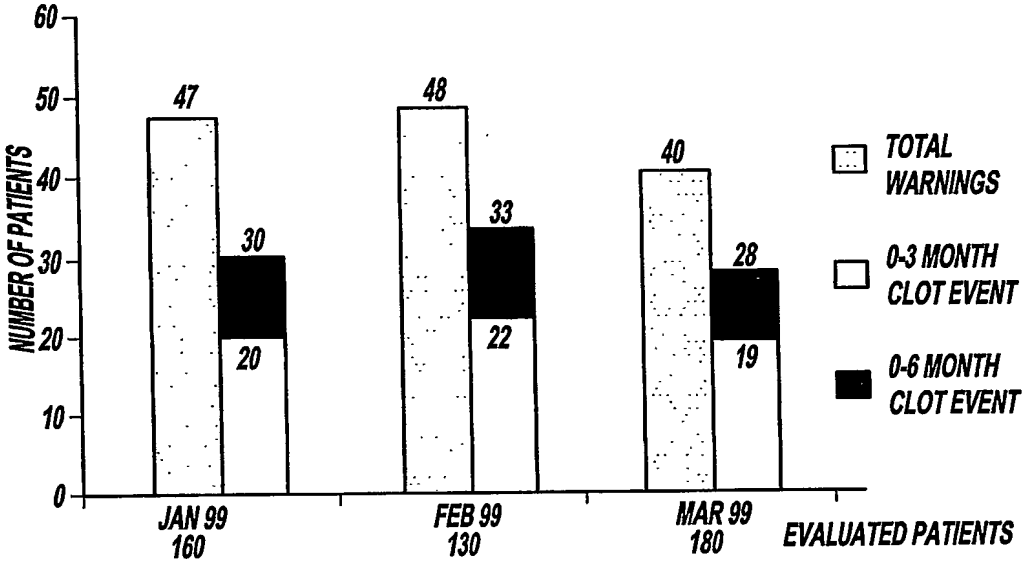

60
50
40
30
20
10
0
NUMBER OF PATIENTS
47
30
20
48
33
22
40
28
19
JAN 99
160
FEB 99
130
MAR 99
180
EVALUATED PATIENTS
TOTAL WARNINGS
0-3 MONTH CLOT EVENT
0-6 MONTH CLOT EVENT

Figure - 5

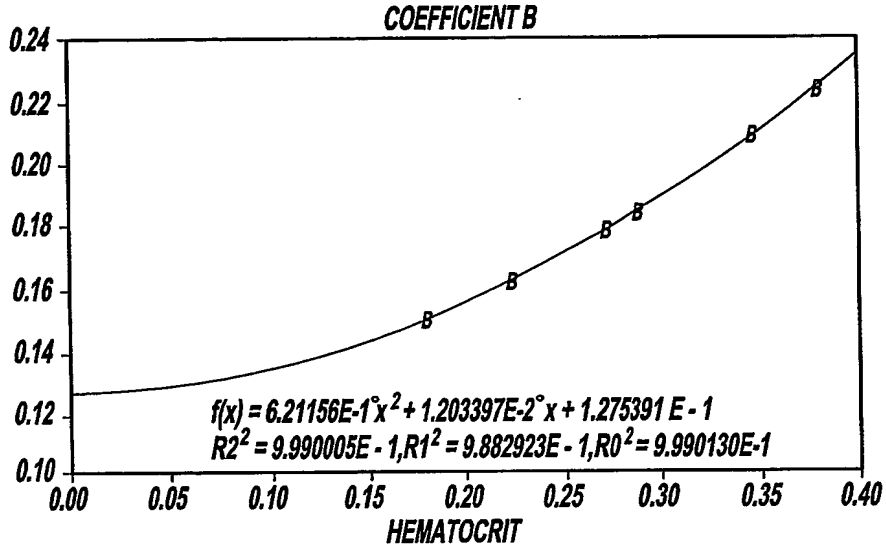
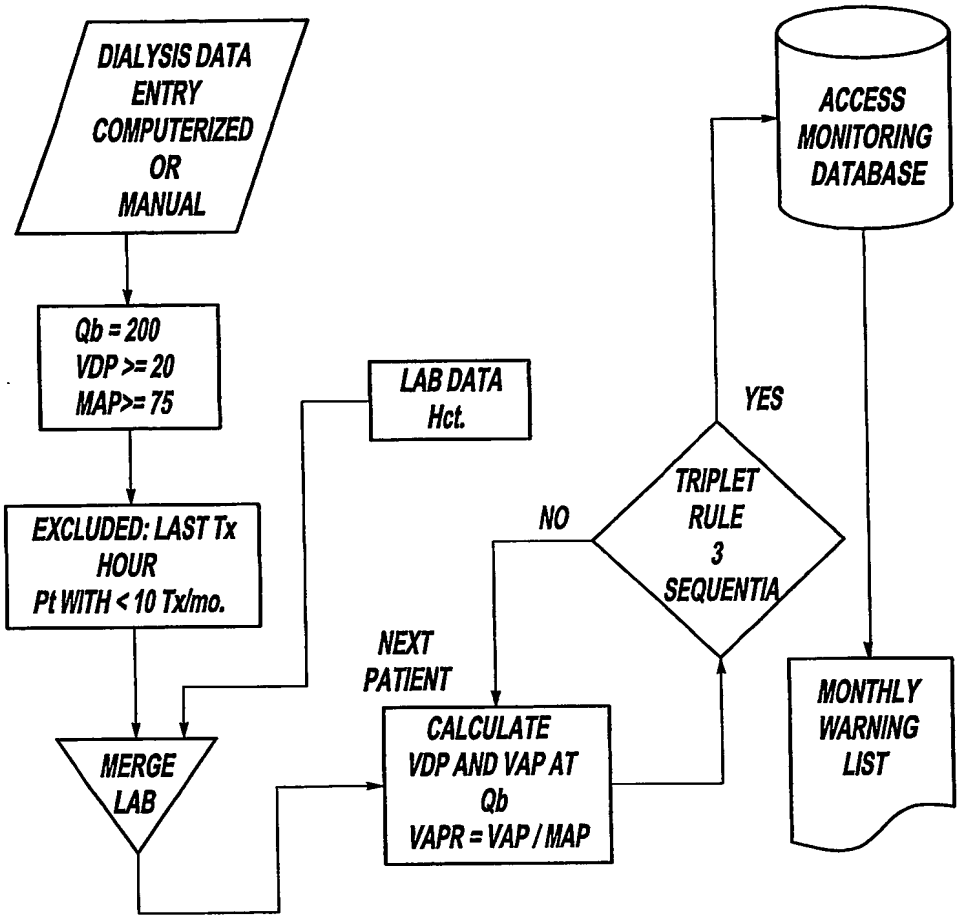

COEFFICIENT B
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
HEMATOCRIT
f(x) = 6.21156E-1°x^2 + 1.203397E-2°x + 1.275391 E - 1
R2^2 = 9.990005E - 1,R1^2 = 9.882923E - 1,R0^2 = 9.990130E-1

Figure - 6



Qb = BLOOD FLOW
MAP = MEAN ARTERIAL PRESSURE
VDP = VENOUS DRIP CHAMBER PRESSURE
VDP_0 = VENOUS DRIP CHAMBER PRESSURE AT ZERO ACCESS PRESSURE
VAP = VENOUS ACCESS PRESSURE RATIO
Tx = TREATMENT
Pt = PATIENT
Hct = HEMATOCRIT

Figure - 7

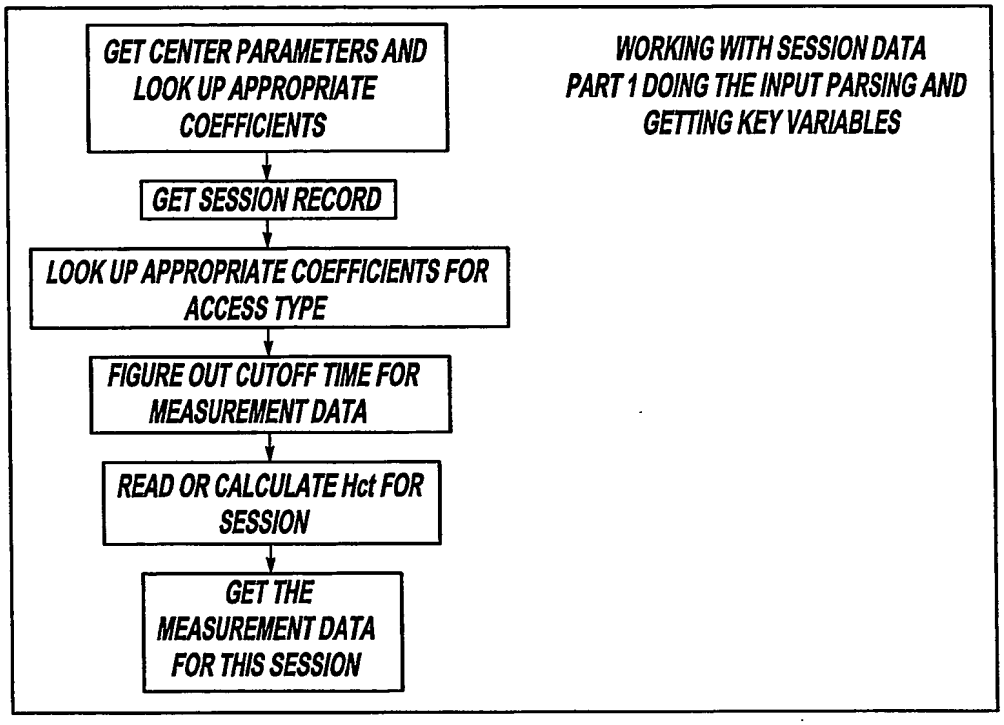

GET CENTER PARAMETERS AND LOOK UP APPROPRIATE COEFFICIENTS
GET SESSION RECORD
LOOK UP APPROPRIATE COEFFICIENTS FOR ACCESS TYPE
FIGURE OUT CUTOFF TIME FOR MEASUREMENT DATA
READ OR CALCULATE Hct FOR SESSION
GET THE MEASUREMENT DATA FOR THIS SESSION
WORKING WITH SESSION DATA PART 1 DOING THE INPUT PARSING AND GETTING KEY VARIABLES

Figure - 7A

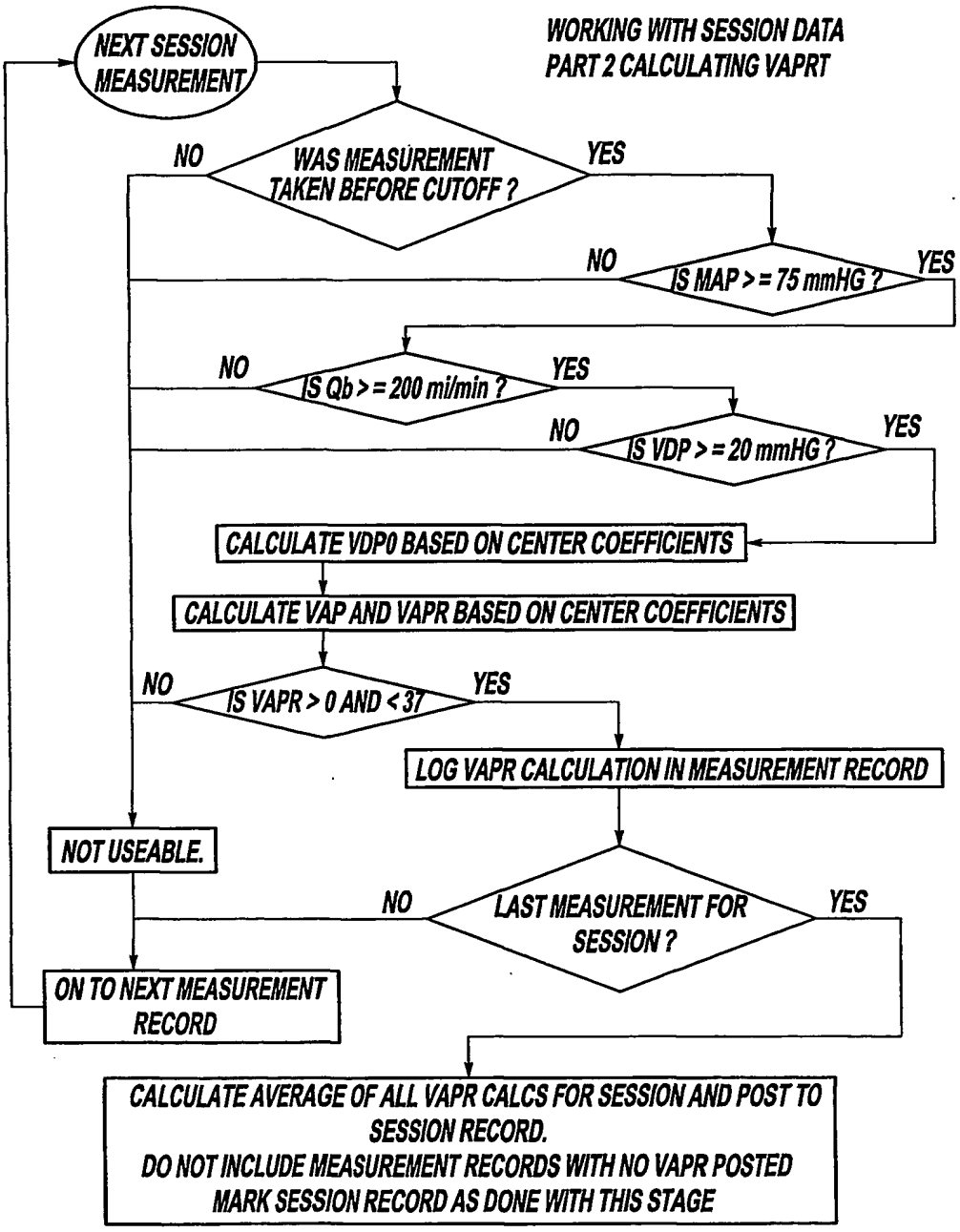

WORKING WITH SESSION DATA
PART 2 CALCULATING VAPRT
NEXT SESSION MEASUREMENT
WAS MEASUREMENT TAKEN BEFORE CUTOFF ?
NO
YES
IS MAP > = 75 mmHG ?
NO
YES
IS Qb > = 200 ml/min ?
NO
YES
IS VDP > = 20 mmHG ?
NO
YES
CALCULATE VDP0 BASED ON CENTER COEFFICIENTS
CALCULATE VAP AND VAPR BASED ON CENTER COEFFICIENTS
IS VAPR > 0 AND < 37
NO
YES
LOG VAPR CALCULATION IN MEASUREMENT RECORD
NOT USEABLE.
LAST MEASUREMENT FOR SESSION ?
NO
YES
ON TO NEXT MEASUREMENT RECORD
CALCULATE AVERAGE OF ALL VAPR CALCS FOR SESSION AND POST TO SESSION RECORD.
DO NOT INCLUDE MEASUREMENT RECORDS WITH NO VAPR POSTED
MARK SESSION RECORD AS DONE WITH THIS STAGE

Figure - 7B

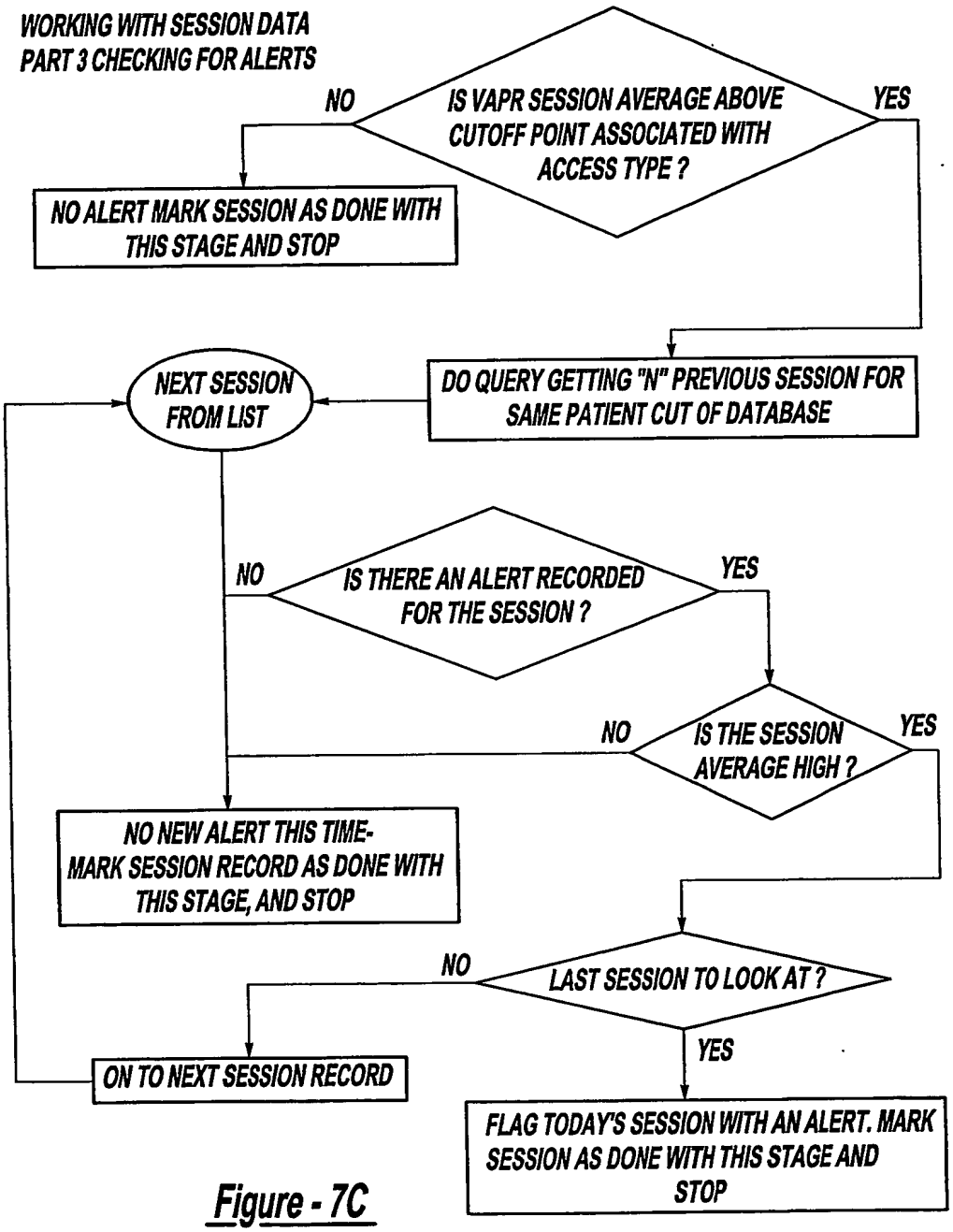

WORKING WITH SESSION DATA
PART 3 CHECKING FOR ALERTS
IS VAPR SESSION AVERAGE ABOVE CUTOFF POINT ASSOCIATED WITH ACCESS TYPE ?
NO
YES
NO ALERT MARK SESSION AS DONE WITH THIS STAGE AND STOP
DO QUERY GETTING "N" PREVIOUS SESSION FOR SAME PATIENT CUT OF DATABASE
NEXT SESSION FROM LIST
IS THERE AN ALERT RECORDED FOR THE SESSION ?
NO
YES
IS THE SESSION AVERAGE HIGH ?
NO
YES
NO NEW ALERT THIS TIME- MARK SESSION RECORD AS DONE WITH THIS STAGE, AND STOP
LAST SESSION TO LOOK AT ?
NO
YES
ON TO NEXT SESSION RECORD
FLAG TODAY'S SESSION WITH AN ALERT. MARK SESSION AS DONE WITH THIS STAGE AND STOP

Figure - 7C

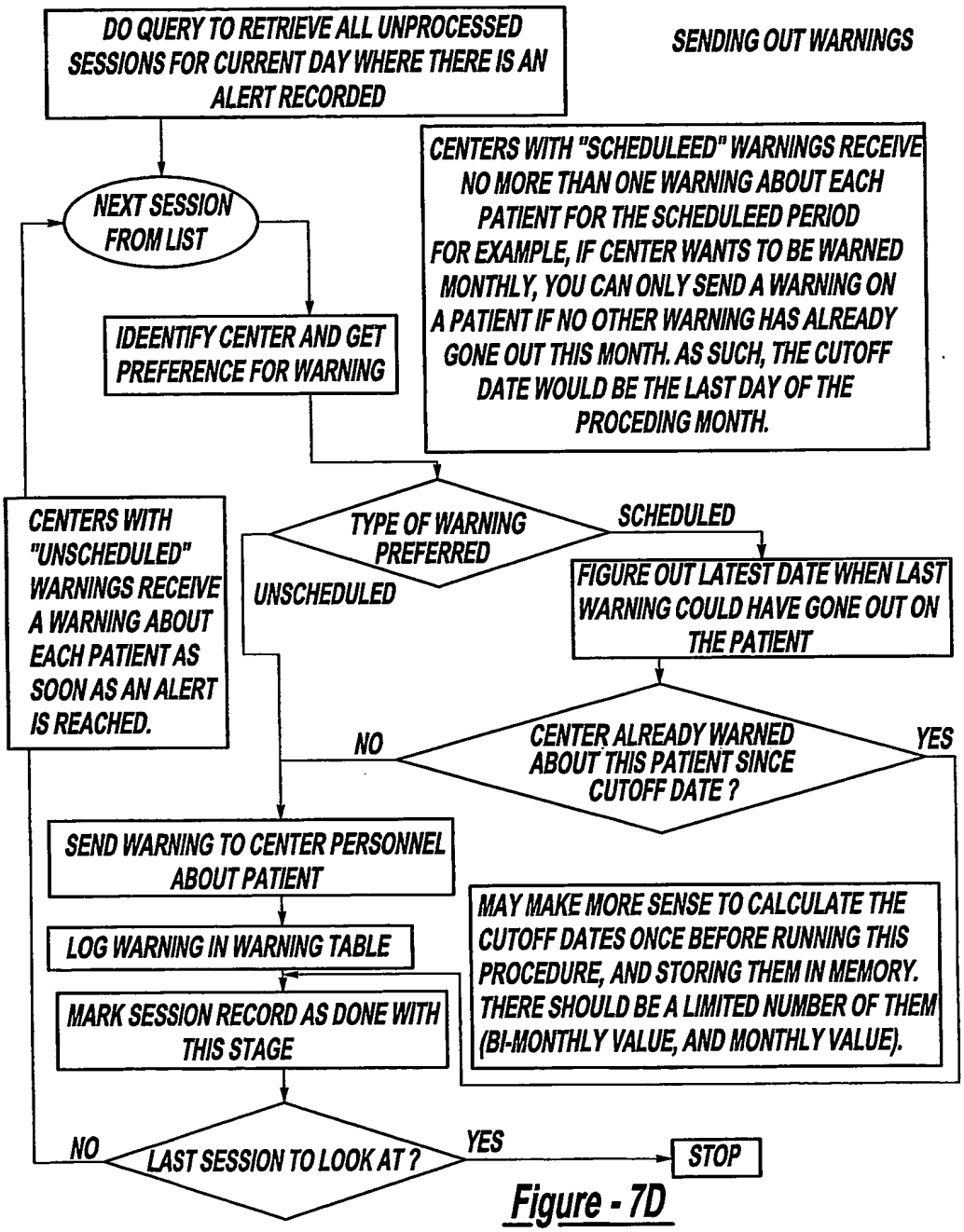

SENDING OUT WARNINGS
DO QUERY TO RETRIEVE ALL UNPROCESSED SESSIONS FOR CURRENT DAY WHERE THERE IS AN ALERT RECORDED
NEXT SESSION FROM LIST
IDEENTIFY CENTER AND GET PREFERENCE FOR WARNING
CENTERS WITH "SCHEDULEED" WARNINGS RECEIVE NO MORE THAN ONE WARNING ABOUT EACH PATIENT FOR THE SCHEDULEED PERIOD FOR EXAMPLE, IF CENTER WANTS TO BE WARNED MONTHLY, YOU CAN ONLY SEND A WARNING ON A PATIENT IF NO OTHER WARNING HAS ALREADY GONE OUT THIS MONTH. AS SUCH, THE CUTOFF DATE WOULD BE THE LAST DAY OF THE PROCEDING MONTH.
CENTERS WITH "UNSCHEDULED" WARNINGS RECEIVE A WARNING ABOUT EACH PATIENT AS SOON AS AN ALERT IS REACHED.
TYPE OF WARNING PREFERRED
SCHEDULED
UNSCHEDULED
FIGURE OUT LATEST DATE WHEN LAST WARNING COULD HAVE GONE OUT ON THE PATIENT
NO
CENTER ALREADY WARNED ABOUT THIS PATIENT SINCE CUTOFF DATE ?
YES
SEND WARNING TO CENTER PERSONNEL ABOUT PATIENT
LOG WARNING IN WARNING TABLE
MARK SESSION RECORD AS DONE WITH THIS STAGE
MAY MAKE MORE SENSE TO CALCULATE THE CUTOFF DATES ONCE BEFORE RUNNING THIS PROCEDURE, AND STORING THEM IN MEMORY. THERE SHOULD BE A LIMITED NUMBER OF THEM (BI-MONTHLY VALUE, AND MONTHLY VALUE).
NO
LAST SESSION TO LOOK AT ?
YES
STOP

Figure - 7D

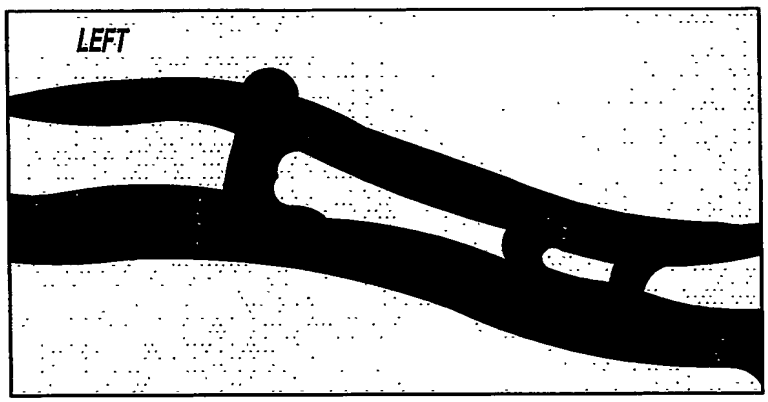


Figure - 8

BEST AVAILABLE COF

Figure - 9A

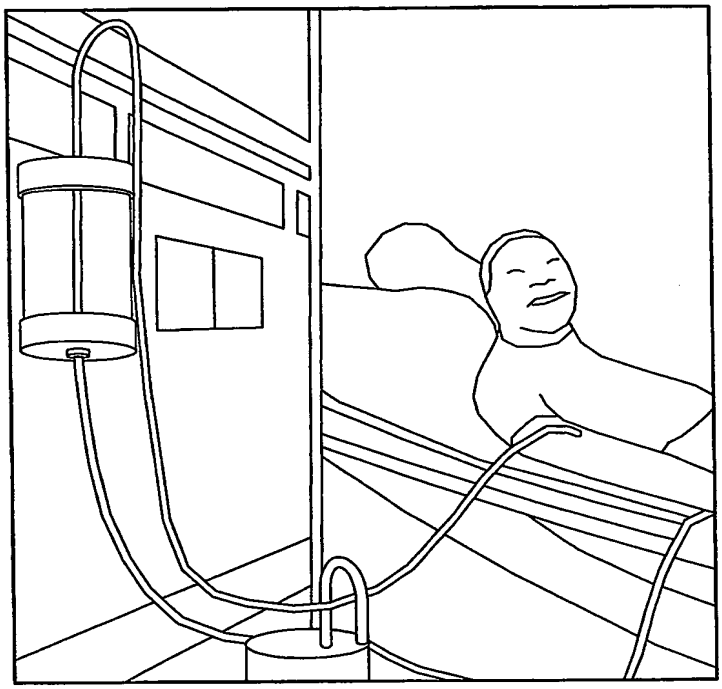


Figure - 9B